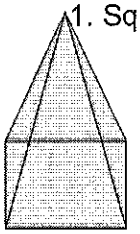
Name Key Date

201 Chapter 12 Test Review

Find p, B, LA, SA, and V for the following shapes.

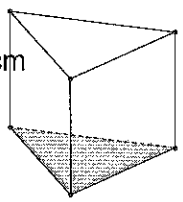
1. Square Pyramid



6cm
h = 4cm
l= 5cm

p = 24cm
B = 36cm²
LA = 60cm²
SA = 96cm²
V = 48cm³

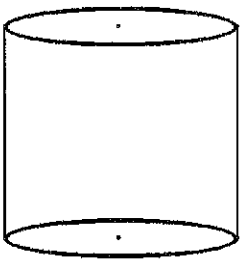
2. Triangular Prism
(Base is equilateral)



p = 24cm
B = $16\sqrt{3}$ cm² ($8\sqrt{3}$, 4)
LA = 168 cm² 24·7
SA = 223.4 cm²
V = $112\sqrt{3} \approx 194.0$ cm³

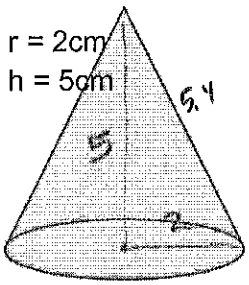
3. Cylinder

r = 5 in
h = 8 in



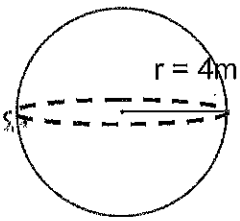
p = 10π in
B = 25π in²
LA = 80π in²
SA = 130π in²
V = 200π in³

4. Cone
(round answers for #4)



p = 4π cm
B = 4π cm²
LA = 33.9 cm² $4\pi \cdot 5$
SA = 46.5cm²
V = 20.9 cm³
$\frac{1}{3} 4\pi \cdot 5$

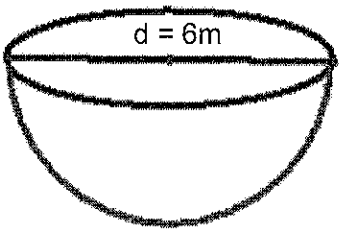
5. Sphere



A = 64π m² 4² 16
V = $85\frac{1}{3}\pi$ m³ $\frac{4}{3}\pi 4^3$

6. Hemisphere

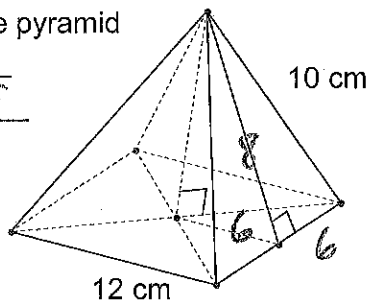
A = 27π m² 3π 3^2
V = 18π m³ $\frac{2}{3}\pi 3^3$



Use Pythagorean Theorem to find height and/or slant height.

7. Square pyramid

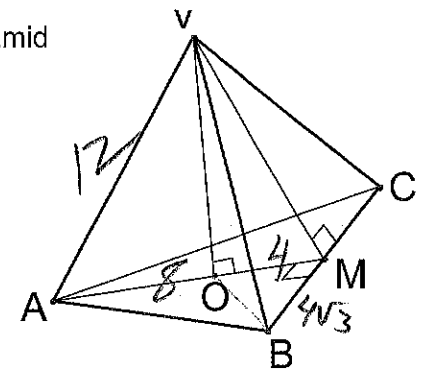
l= 8cm
h = $2\sqrt{7}$



8. Regular Triangular Pyramid

h = $4\sqrt{5}$ cm
AB = $8\sqrt{3}$cm
AV = 12 cm

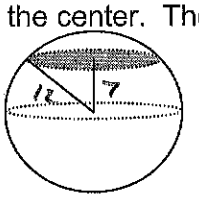
$144 = 64 + h^2$



9. A plane intersects a sphere 7 cm from the center. The radius of the sphere is 12cm. What is the area of the circle formed?

95π cm²

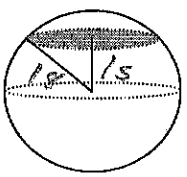
144
− 49
$r^2 = 95$



10. A plane intersects a sphere 15 cm from the center. The radius of the sphere is 18cm. What is the area of the circle formed?

$18^2 - 15^2$
99

99π cm²



11. A sphere has a volume of 972π in^3. What is the radius?

$972\pi = \frac{4}{3}\pi r^3$

$9 \text{ in} = r$

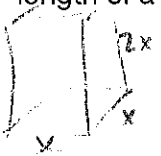
12. A prism has a lateral area of 192cm^2. The perimeter of the base is 24 cm. What is the height of the prism?

$LA = ph$

$192 = 24h$

$8\text{cm} = h$

13. The volume of a square prism is 432cm^3. The height is 2 x side of the square. What is the length of a side?



$432 = 2x^3$

$216 = x^3$

$6\text{cm} = x$

14. Two similar prisms have heights of 5cm and 9 cm.

What is the scale factor? 5:9

What is the ratio of areas? 25:81

What is the ratio of volumes? 125:729

The volume of the smaller prism is 24 cm^3. What is the volume of the larger? 140.0cm^3

$\frac{24}{V} = \frac{125}{729}$

15. Two similar cones have lateral **areas** of 6π cm^2 and 96π cm^2. (reduce 1st)

What is the scale factor? 1:4

What is the ratio of volumes? 1:64

$\frac{6}{96} = \frac{1}{16}$

The volume of the larger cone is 128 cm^3. What is the volume of the smaller? 2cm^3

$\frac{1}{64} = \frac{V}{128}$

$E+2=F+V$

Use Euler's Theorem to find the value of *n*.

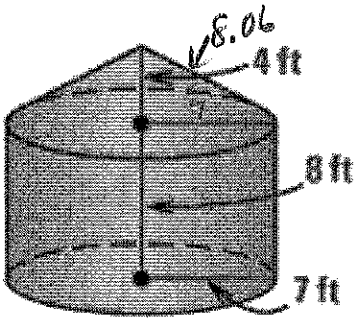
3. Faces: 20 $30+2=20+F$
Vertices: *n*
Edges: 30
$12=F$

4. Faces: *n* $12+2=6+F$
Vertices: 6
Edges: 12
$8=F$

5. Faces: 14 $E+2=14+24$
Vertices: 24
Edges: *n*
$E=36$

Find the surface area.

9.



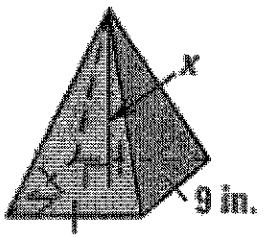
$SA = A_{circle} + LA_{cyl.} + LA_{cone}$

$4\pi + 14\pi \cdot 8 + \frac{1}{2} 14\pi \cdot 8.06$

$161\pi + 177.3$

$\approx 683.1\ ft^2$

13. Volume = 324 in.^{3}
Solve for x.

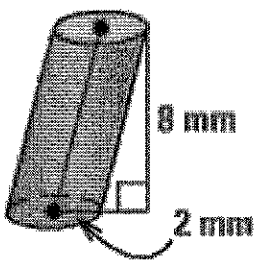


$324 = \frac{1}{3} 81 \cdot x$

$12\ in = x$

Find the volume.

14.



$V = Bh$

$4\pi \cdot 8$

$V = 32\pi\ mm^3$